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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/606,939	06/30/2000	Takahiro Kimura	Q59907	8452

7590 11/26/2003
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2100 Pennsylvania Avenue NW
Washington, DC 20037

EXAMINER

FISCHER, JUSTIN R

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 11/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/606,939

Applicant(s)

KIMURA ET AL.

Examiner

Justin R Fischer

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-- Th MAILING DATE of this communication appears on th cover sheet with the correspond nce address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 July 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-7,9-15,17 and 19-24 is/are pending in the application.
- 4a) Of the above claim(s) 4 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 20-24 is/are allowed.
- 6) ☒ Claim(s) 5-7,9,10,13-15,17 and 19 is/are rejected.
- 7) ☒ Claim(s) 2,3,11 and 12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 June 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

1. The indicated allowability of claims 17 and 18 is withdrawn in view of the newly discovered reference(s) to Tsukagoshi and Miyazaki. Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 13, 14, 15, and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Tsukagoshi (US 6,530,411, newly cited).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in

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the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131. **Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.**

As best depicted in Figure 4, Tsukagoshi teaches a pneumatic tire construction comprising a tread portion, a pair of sidewalls, a pair of bead portions, a steel reinforced carcass 15 toroidally extending between a pair of bead cores, and a steel reinforcing layer 18, wherein said carcass has a wound portion that (a) is wound around the bead core from an inside of the tire toward an outside thereof and (b) has a terminal end in the vicinity of a main body of the carcass ply at an outer peripheral position of the bead core (Column 11, Line 57 – Column 12, Line 27). In this instance, the steel reinforcing layer is arranged along the main body carcass portion and the turnup carcass portion as required by the claimed invention, such that the terminal end (that which is located axially outward of the bead core) of said steel reinforcing layer is (i) radially outward of the terminal end of the carcass ply and (ii) axially outward of the bead core.

As a matter of form, it is suggested that the axial and radial arrangement of the steel cord reinforcing layer is defined with respect to the bead cores. For example, line 8 of claim 17 states, "at least one reinforcing layer located inside in a widthwise direction of the tire". As currently drafted, there is no reference point to define the inside positioning. It is suggested that the claim be amended to recite, "at least one reinforcing layer located inside the bead core....".

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsukagoshi as applied in Paragraph 3 above and further in view of Miyoshi (JP 52-75702, of record). As set forth in the previous paragraph, Tsukagoshi is directed to a pneumatic tire construction comprising a carcass formed of steel reinforcing elements and a steel cord reinforcing layer, wherein said carcass has a wound portion that is arranged along the outer peripheral surface of the bead core. However, Tsukagoshi is completely silent with respect to the size and spacing of the steel reinforcing elements in the steel cord reinforcing layer and thus necessarily fails to expressly suggest a cord diameter or cord spacing between 1.00 and 1.50 millimeters. In any event, it is readily appreciated in the tire industry that the diameter and spacing of reinforcing elements is dependent on the type of tire, the intended use of the tire, and the additional tire structure (material and number of carcass plies, reinforcing plies, belt plies...). As such, it would have been within the purview of one of ordinary skill in the art at the time of the invention to appropriately select a steel cord diameter and spacing depending on the aforementioned characteristics, it being further noted that steel cords having the claimed diameters are commonly employed in larger sized tires such as that described by Tsukagoshi. Additionally, while the claim contains a limitation that intends to require

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a flaring at the cord end, the claim does not exclude there being no flare since the diameter at the end is between 1.0 and 1.5 times the general cord diameter. Miyoshi is further provided to evidence that it is well known in the tire industry to flare the ends of reinforcing elements in order to eliminate strain and ultimately improve the durability of a given tire. In this instance, Miyoshi suggests a flared region that is between 1.1 and 2.5 times the general cord diameter, which includes nearly every value of the claimed invention, there being no evidence of "unexpected results" in the original disclosure to provide a criticality for a flared range between 1.0 and 1.5.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsukagoshi as applied in Paragraph 3 above and further in view of the Admitted Prior Art (Amendment A filed May 29, 2002). Tsukagoshi is directed to a pneumatic tire construction having a tread portion, a pair of sidewalls, a pair of bead portions, a carcass 15 toroidally extending between said bead portions, and a steel cord reinforcing layer 18, wherein (a) said carcass is formed of steel reinforcing elements and (b) said carcass has a turnup portion that is wound around the respective beads from an inside to an outside, such that the terminal end of said turnup portion is located at an outer peripheral position of said beads in the vicinity of the main portion of said carcass. While Tsukagoshi fails to expressly describe the twisting structure of the steel reinforcing elements in the steel cord reinforcing layer 18, the use of both S and Z twisting assemblies is extremely well known in the cord industry and particularly in the tire industry, as shown for example by the Admitted Prior Art (Page 7, 1st Paragraph). In this instance, applicant states that the "Z-lay outer sheath structure" is a conventional

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twisting structure that is known in the art as evidenced by selected portions of two pieces of literature. As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to form the reinforcing elements in the steel cord reinforcing layer of Tsukagoshi as a "Z-lay outer sheath structure", there being no evidence of any unexpected results to establish a criticality for such a twisting structure.

7. Claim 9, 10, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsukagoshi as applied in Paragraph 3 above and further in view of Ochiai (US 5,029,627, of record). Tsukagoshi is applied in the same manner as set forth in Paragraph 3 above. While Tsukagoshi fails to include at least one organic fiber chafer, such tire components are extensively used in bead portions to eliminate the buildup of stresses and optimize the bead reinforcement. For example, Ochiai is similarly directed to a pneumatic, radial ply tire having a steel carcass structure and at least one steel bead reinforcing layer. Ochiai further suggests the use of an organic cord layer (organic fiber chafer) that is disposed axially outward of the carcass turnup portion, as required by the claimed invention. One of ordinary skill in the art at the time of the invention would have found it obvious to include additional bead reinforcing layers in the tire of Tsukagoshi since the necessary degree of reinforcement is dependent on the specific type of tire and the intended use of the tire. In particular, it is recognized in the tire industry that increased reinforcement in the bead region is commonly associated with heavy duty and other large sized tires, such as that described by Tsukagoshi.

Regarding claims 10 and 19, although Ochiai does not specifically define the inclination angle of the organic fiber cords, the broad range of the claimed invention

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defines a conventional bead reinforcing ply structure. It is noted that Ochiai suggests an angle between 20 and 70 degrees for the reinforcing elements in the bead reinforcing layer, such that one of ordinary skill in the art at the time of the invention would have expected the reinforcing elements in the organic fiber cord layer to have a similar inclination as is well known in the tire industry. With specific respect to claim 19, Ochiai recognizes the well known inclination angle of steel cord reinforcing layers in the bead region, such that the steel cords would be inclined or crossed in relation to a radial carcass assembly.

8. Claims 13, 14, 15, 17, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Powell (GB 1,00,113, of record) and further in view of Miyazaki (US 6,109,320, newly cited) and optionally in view of the Admitted Prior Art (Figure 1). As best depicted in Figure 1, Powell is directed to a pneumatic tire construction having a tread portion, a pair of sidewalls, a pair of bead portions, a carcass 4 toroidally extending between said bead portions, and a steel cord reinforcing layer 8 (Page 2, Lines 37-46), wherein (a) said carcass is formed of steel reinforcing elements (Page 1, Lines 75-85) and (b) said carcass has a turnup portion that is wound around the respective beads from an inside to an outside, such that the terminal end of said turnup portion is located at an outer peripheral position of said beads in the vicinity of the min carcass portion. In describing the steel cord reinforcing layer, Powell broadly states that the radially inner end is disposed in the heel region (Page 2, Lines 37-41). While the reference fails to describe the steel reinforcing cord layer as having a portion that is axially inside the bead core, one of ordinary skill in the art at the time of the invention

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would have found it obvious to extend the steel cord reinforcing layer in such a manner since this arrangement is commonly employed in the tire industry and provides the benefits of improved bead durability, as shown for example by Miyazaki (Column 5, Lines 15-40 and Figure 4). It is emphasized that the bead reinforcing layer of Miyazaki is a steel cord reinforcing layer (wire chafer) and positioned axially outward of the carcass turnup in the same manner as Powell and the claimed invention. Thus, Miyazaki clearly recognizes the benefits of a tire construction in which a steel cord reinforcing layer is arranged axially inward of the main carcass portion and axially outward of the turnup carcass portion. The Admitted Prior Art is optionally applied to further evidence the conventional arrangement of steel cord reinforcing layers in the bead portion, particularly an axially inner and outer portion in relation to the bead cores.

Regarding claims 13-15, the terminal end of the steel cord reinforcing layer in Powell is arranged (i) axially outward of both the bead core and the carcass ply and (ii) radially outward of the carcass ply.

With respect to claim 19, one of ordinary skill in the art at the time of the invention would have readily appreciated and expected the cords of the steel cord reinforcing layer of Powell to be inclined with respect to the cords of the radial carcass ply as is well known in similar bead constructions. For example, the steel cords in the steel cord reinforcing layer of Miyazaki are inclined at an angle between 15 and 60 degrees (Column 4, Lines 43-50). These cords are thus inclined with respect to the radial cords of the carcass ply.

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9. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Powell, Miyazaki, and the Admitted Prior Art as applied in Paragraph 8 above and further in view of Miyoshi (JP 52-75702, of record). As set forth in the previous paragraph, Powell is directed to a pneumatic tire construction comprising a carcass formed of steel reinforcing elements and a steel cord reinforcing layer, wherein said carcass has a wound portion that is arranged along the outer peripheral surface of the bead core. However, Powell is completely silent with respect to the size and spacing of the steel reinforcing elements in the steel cord reinforcing layer and thus necessarily fails to expressly suggest a cord diameter or cord spacing between 1.00 and 1.50 millimeters. In any event, it is readily appreciated in the tire industry that the diameter and spacing of reinforcing elements is dependent on the type of tire, the intended use of the tire, and the additional tire structure (material and number of carcass plies, reinforcing plies, belt plies...). As such, it would have been within the purview of one of ordinary skill in the art at the time of the invention to appropriately select a steel cord diameter and spacing depending on the aforementioned characteristics, it being further noted that steel cords having the claimed diameters are commonly employed in larger sized tires such as that described by Powell. Additionally, while the claim contains a limitation that intends to require a flaring at the cord end, the claim does not exclude there being no flare since the diameter at the end is between 1.0 and 1.5 times the general cord diameter. Miyoshi is further provided to evidence that it is well known in the tire industry to flare the ends of reinforcing elements in order to eliminate strain and ultimately improve the durability of a given tire. In this instance, Miyoshi suggests a

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flared region that is between 1.1 and 2.5 times the general cord diameter, which includes nearly every value of the claimed invention, there being no evidence of "unexpected results" in the original disclosure to provide a criticality for a flared range between 1.0 and 1.5.

10. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Powell, Miyazaki, and the Admitted Prior Art as applied in Paragraph 8 above and further in view of the Admitted Prior Art (Amendment A filed May 29, 2002). Powell is directed to a pneumatic tire construction having a tread portion, a pair of sidewalls, a pair of bead portions, a carcass 15 toroidally extending between said bead portions, and a steel cord reinforcing layer 18, wherein (a) said carcass is formed of steel reinforcing elements and (b) said carcass has a turnup portion that is wound around the respective beads from an inside to an outside, such that the terminal end of said turnup portion is located at an outer peripheral position of said beads in the vicinity of the main portion of said carcass. While Powell fails to expressly describe the twisting structure of the steel reinforcing elements in the steel cord reinforcing layer 18, the use of both S and Z twisting assemblies is extremely well known in the cord industry and particularly in the tire industry, as shown for example by the Admitted Prior Art (Page 7, 1st Paragraph). In this instance, applicant states that the "Z-lay outer sheath structure" is a conventional twisting structure that is known in the art as evidenced by selected portions of two pieces of literature. As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to form the reinforcing elements in the steel cord

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reinforcing layer of Powell as a "Z-lay outer sheath structure", there being no evidence of any unexpected results to establish a criticality for such a twisting structure.

11. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Powell, Miyazaki, and the Admitted Prior Art as applied in Paragraph 8 above and further in view of Ochiai (US 5,029,627, of record). Powell is applied in the same manner as set forth in Paragraphs 2 above. While Powell fails to include at least one organic fiber chafer, such tire components are extensively used in bead portions to eliminate the buildup of stresses and optimize the bead reinforcement. For example, Ochiai is similarly directed to a pneumatic, radial ply tire having a steel carcass structure and at least one steel bead reinforcing layer. Ochiai further suggests the use of an organic cord layer (organic fiber chafer) that that is disposed axially outward of the carcass turnup portion, as required by the claimed invention. One of ordinary skill in the art at the time of the invention would have found it obvious to include additional bead reinforcing layers in the tire of Powell since the necessary degree of reinforcement is dependent on the specific type of tire and the intended use of the tire. In particular, it is recognized in the tire industry that increased reinforcement in the bead region is commonly associated with heavy duty and other large sized tires, such as that described by Powell.

Regarding claim 10, although Ochiai does not specifically define the inclination angle of the organic fiber cords, the broad range of the claimed invention defines a conventional bead reinforcing ply structure. It is noted that Ochiai suggests an angle between 20 and 70 degrees for the reinforcing elements in the bead reinforcing layer,

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such that one of ordinary skill in the art at the time of the invention would have expected the reinforcing elements in the organic fiber cord layer to have a similar inclination as is well known in the tire industry.

Allowable Subject Matter

12. Claims 20-24 are allowed. The prior art references of record failed to suggest, disclose, or teach tire construction having the claimed bead arrangement in combination with a wound carcass design. While Powell and Tsukagoshi suggest a wound carcass construction having a single steel cord reinforcing layer, the prior art references of record failed to suggest the inclusion of multiple reinforcing layers having a radial positioning as defined by the claimed invention

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

13. Claims 2, 3, 11, and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The examiner's statement of reasons for indicating allowable subject matter has been previously set forth in Paper Number 10, Paragraph 9. In particular, the prior art references of record failed to suggest the arrangement of a cushion rubber between a steel cord reinforcing layer and

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a main carcass portion in combination with the specific bead construction defined by the claimed invention (steel cord reinforcing layer arranged on axially inner and outer side of bead cores and carcass ply has wound portion that contacts outer peripheral surface of bead core). One of ordinary skill in the art at the time of the invention would not have found it obvious to include the aforementioned rubber layer in either Powell or Tsukagoshi, it being recognized that there is a specific interaction between the axially inner (in relation to the bead core) cushion rubber and the wound carcass design that was not suggested by the prior art references of record.

Response to Arguments

14. Applicant's arguments with respect to claims 5-7, 9, 10, 13-17, and 19 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Justin R Fischer** whose telephone number is **(703) 605-4397** (if after December 18, 2003, (571) 272-1215). The examiner can normally be reached on M-F (7:30-4:00).


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (703) 308-3853. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


Justin Fischer

November 18, 2003


JEFF H. ATERGUT
PRIMARY EXAMINER
GROUP 1300